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ABSTRACT

One of a series of activity guides, this publication offers a variety of learning activities and resource materials for primary grade students. The activities and resources include: science activities (especially dealing with soil and rocks); word puzzles and other puzzles; arts and crafts activities (including Christmas tree ornaments); flannelboard stories; a Christmas story; a list of skills important in both science and reading; mathematics activities; and lists of earth science books for young children and books on rocks and minerals for children and teachers. Several of the activities are related to Christmas and the winter months. (DC)

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December.....

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

ROCK CANDY

Supplies needed:

- ½ cup water
- Small saucepan
- 2 cups of granulated sugar
- 1 tablespoon
- Wooden spoon
- 1 tall glass
- 1 clean paper clip
- 1 piece of clean cotton string slightly less than the height of the glass
- Pencil

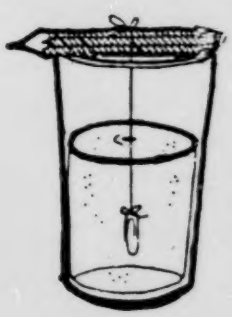
How to do it:

1. Put the half cup of water in the pan and heat until hot (not boiling).
2. Add the sugar one tablespoon at a time.
3. Stir with the wooden spoon after each addition.
4. Do this until the sugar no longer dissolves when you add it (it should take most of the two cups).
5. Heat and stir until the sugar solution boils.
6. Boil one minute or until the solution is thick and clear.
7. Let the solution cool and then pour it into the glass.
8. Tie the paper clip to the string and attach the string to the pencil.
9. Place the paper clip in the sugar solution and let the solution sit at room temperature for one week or more.
10. If the top of the solution crusts over with sugar, break the crust gently.

What happens:

1. How long does it take for the first rock candy crystals to form?

_____



WORD HUNT

S T O C K I N G S M
C H R I S T M A S I
C T R E E T M B E R
L B A L L S N Z L T
B H S A N T A Y D L
K S G W T V Q L N E
J E I X F F U L A S
A V Y C I T E O C N
S L E I G H R H D I
R E I N D E E R S T

STOCKINGS
SLEIGH
REINDEER
CANDLE
TREE
ELVES
BALLS
TRIM
SANTA
CHRISTMAS
GIFT
HOLLY
TINSEL

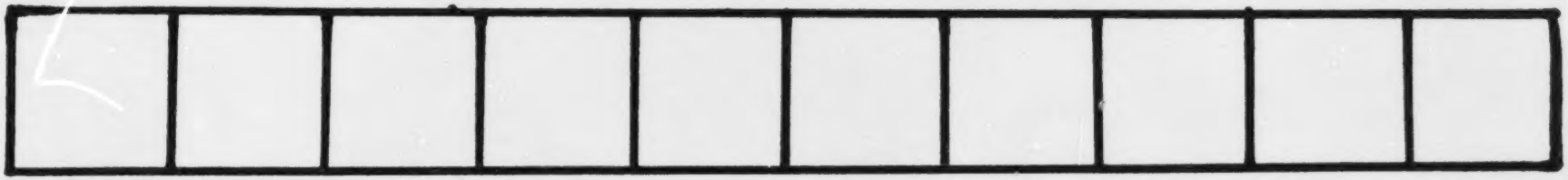
LOW TILE WAR

2 Players

Need: Tiles numbered 0-9 per player (in separate containers). May be purchased at Standard Brands. 11 x 11 sheet - 89¢, three sheets needed for the average class.

Each player draws a tile form his container. The player with the lower number places it on his board in it's proper numerical location. The other player returns his tile to his container. When a player has only his 9 tile left, he may put it on the board to win.

Player A



Player B

Note: In case of a tie, both players return their tiles to the containers.

Ingredients: Charcoal, Little Boy Bluing, water, salt, ammonia, and a glass or metal conatiner.

Mix together:
1. 6 tablespoons (90 ml) of ammonia
2. 6 tablespoons (90 ml) of water
3. 6 tablespoons (90 ml) of salt
4. 6 tablespoons (90 ml) of Little Boy Bluing

crystal garden

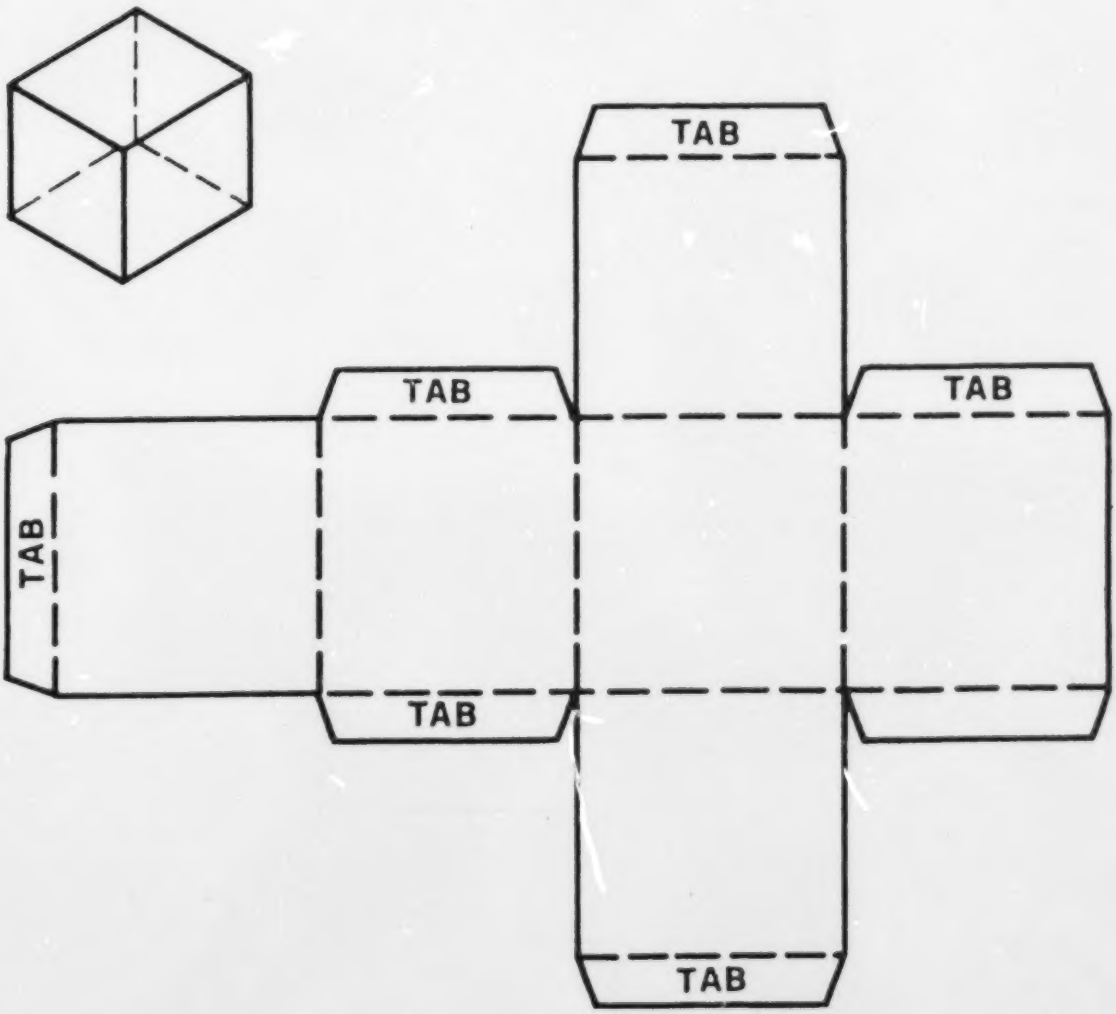
Pour mixture over coal or charcoal. Add food coloring or ink. Also try adding water and sticks and perhaps a tree branch to see what happens. You may want to try using a spray bottle to spray above mixture over coal each day. Alum also works well for this activity. Record your results by making a painting of your findings.

Try forming crystals using salt dissolved in water. Put a string between two containers of salt water and have crystals crawl along string. Study the design made by crystals and the shape of the crystals. What geometric patterns do you see? Record your results in your science log.

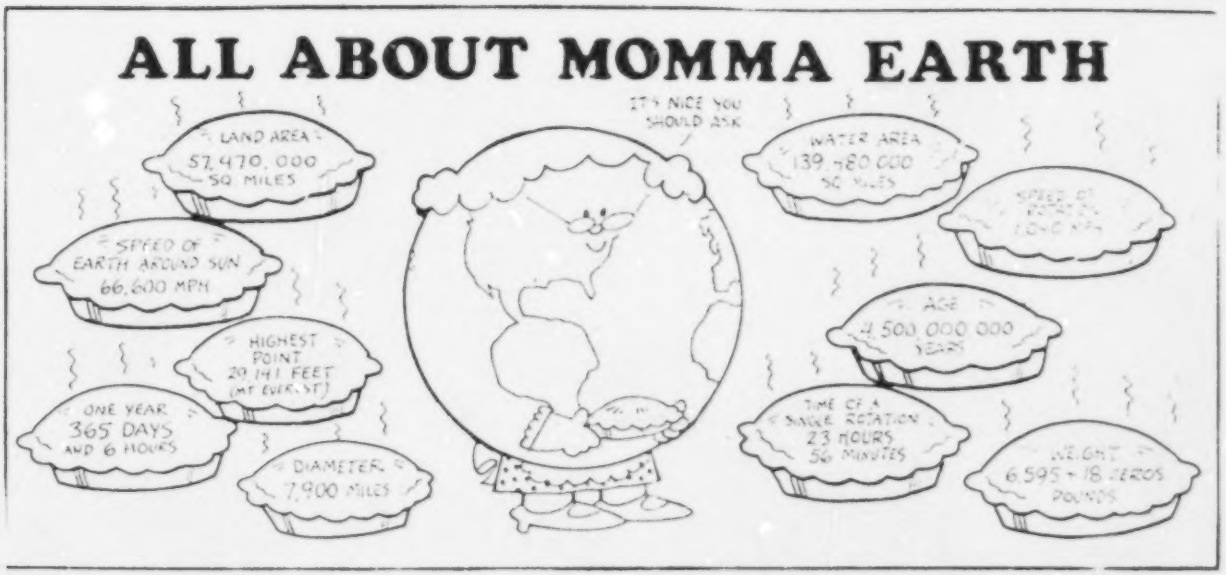
MODELS OF CRYSTAL SHAPES

Crystals are classified into 6 major categories: (1) isometric, (2) tetragonal, (3) triclinic, (4) hexagonal, (5) orthorhombic, and (6) monoclinic. Each category includes many different crystal shapes. For example, three crystal models which follow are categorized as isometric crystals.

Copy the patterns of the cube, octohedron, rhombohedron, and pyritohedron onto stiff paper. Make each dimension larger if desired. Then cut out, fold, and tape the tabs to make models of some mineral crystal shapes.



More crystal shapes to construct:
Exploring Earth Science: Joseph Becker & Robert Kilburn, Allyn & Bacon, Inc.


ALL ABOUT MOMMA EARTH
IT'S NICE YOU SHOULD ASK
LAND AREA 57,470,000 SQ. MILES
WATER AREA 139,480,000 SQ. MILES
SPEED OF ROTATION 1040 MPH
SPEED OF EARTH AROUND SUN 66,600 MPH
AGE 4,500,000,000 YEARS
HIGHEST POINT 29,141 FEET (MT. EVEREST)
ONE YEAR 365 DAYS AND 6 HOURS
TIME OF A SINGLE ROTATION 23 HOURS 56 MINUTES
DIAMETER 7,900 MILES
WEIGHT 6,595 + 18 ZEROS POUNDS

Momma Earth is looking very domestic dressed in a gingham dress and apron and surrounded by freshly baked pies with all her vital statistics printed on them. Atop her north pole, glue white fluffy cotton for her hair. As an interest-getter, staple inexpenxive pliable children's sunglass frames to her face for spectacles. For Momma Earth's weight, have the children challenge their resource skills by finding out how to read the numeral, and how scientists were able to arrive at the earth's weight without her on a gigantic scale. For your information, the numeral is read as: 6 sextillion, 595 quintillion.

Use these captions as an idea springboard to concoct other clever bulletin boards. Capitalize on caption power with tracing letter alphabets from Trend enterprises. They come in many interesting styles and several sizes--6", 4" and 2"--to help your caption reach maximum power.

Tremors... Earth-Shaking News

INSECTS: THE RIVAL WORLD

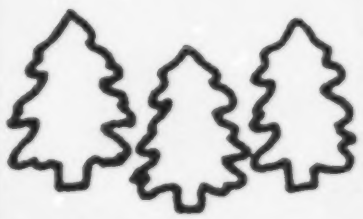
What's In The Earth's Soil?

UNEARTHING THE MYSTERIES OF THE EARTH

Package Name Tags

Color and cut out tags on these pages. Use them for the Christmas gifts you give.

To:



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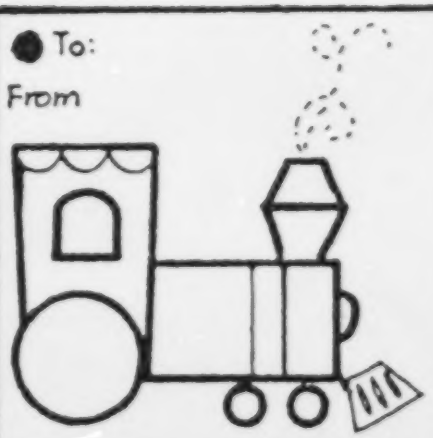

To: _____

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From: _____

PEDRO'S CHRISTMAS FLOWER

"How are you this morning, Mama?" Pedro spoke softly as he bent over the thin white-faced woman who lay on the cot.

"Better maybe - a little better, Pedro," she whispered. "Perhaps I can get up soon - maybe manana, Pedro."

But Pedro knew that it was not so. Each day his tired little mother grew thinner and paler. If only he could have a good doctor come to the little adobe hut. If only there was medicine for her. But medicine costs money and Pedro earned hardly enough for food from the sale of firewood.

Pedro sighed as he closed the door. Today he must buy beans and if there was enough money left, a small piece of meat. How he would like to buy a Christmas present for his mother! He would buy one of the silver necklaces which the silversmith sold. Or he'd buy a pair of silver earrings. But, alas, that could never be.

Pedro placed the saddle baskets on each side of the little brown burro and led him out of the shed. The sunshine was bright but the air was crisp.

He walked behind the donkey, switching his long stick gently over the animal's back. Now and then Pedro would stop to pick up a piece of dried mesquite or a piece of dead cactus. These he loaded into baskets. But wood was hard to find on the desert. He walked farther than he had ever gone before.

He climbed a little rise of ground and stood on the sandy knoll looking down into the little valley below. A tiny stream trickled from a small rocky cliff. It ran into a little pool. Beside the pool, growing close to the water were some tall pretty red flowers. Their leaves were a glossy green. They shown like the candles in the church. Pedro ran down the slope to the flowers.

"They're beautiful," he cried. "Like - like Christmas. I'll pick Mama a bouquet for a Christmas surprise." He bent and picked a beautiful bright red blossom. But almost as soon as he pulled the stalk from its root, it withered. Its petals seemed to shiver and fade. The white sap dripped onto his fingers.

"Oh," Pedro cried, "they bleed. They die! But perhaps if I dig the roots, too, they will keep for Mama's Christmas." He took a sharp stick and dug carefully about the roots. Soon he had a soft ball of earth with the red flower standing proudly upright in the middle. Pedro put the plant in the corner of one of his wood baskets. Then he kept on gathering fireweed. When the baskets were full, he turned the little burro back toward home. It was still early when he stopped at the house of his first customer.

"Buenos dias," Senora Martinez greeted him. "What a lovely flower you have there, Pedro!"

"A beautiful flower," said a man who was standing beside the donkey. He was a stranger and had difficulty speaking the language.

"It is for my mama," Pedro said. "It is for her Christmas."

"Dr. Poinsett is a great lover of flowers," Senora Martinez said. "At his home in the United States he has a greenhouse where he raises many flowers."

"But that one," the tall doctor said, "is a new one to me. It is very lovely. Would you sell it, boy?"

"It is for Mama," Pedro said. Then quickly, "But if you are a doctor perhaps you could help me sir. My mama is very sick and there is no doctor. If you would come, sir, I could show you where these flowers grow. You could have all of them you want."

"You say your mother is ill?" The doctor had forgotten the flower.

"Oh, yes, and white and thin. I try to help her but she needs medicine."

"I will come," the doctor said. "One moment and I will be with you."

The good doctor got his black bag and Pedro led the way to the adobe hut. Pedro waited outside while the doctor made his examination. It seemed a long time before he came out but Pedro was glad to see a smile on his face.

"Good food and the right medicine will cure her. You and I will go into the village and get what she needs. She is very sick now but she will get better soon."

"Oh, Dr. Poinsett," Pedro cried, "you mean she will be well and strong again?'

"Yes," said the doctor, "but she will need fruit and vegetables. Beans are not enough. Come, we will go shopping."

They went to the village and the good doctor bought fruit, vegetables, meat and milk. "You must eat these good foods too, Pedro," said the doctor. "I will bring some each day while I am staying with Senora Martinez. Then I will leave money for you to buy more good food."

"Gracias, gracias," cried Pedro. He prepared the food for dinner and hurried to wash and put away the dishes. Then he put the baskets on the burro and hurried away to the little valley. The sun was going down before he finished digging out the roots of a beautiful red flower like the one he had dug for his mother. He took it to the good doctor.

"Here is your Christmas flower," said Pedro.

"It will be the Christmas flower of many people," said the doctor, "just wait and we shall see."

"It shall be my poinsettia flower," said Pedro. "I shall name it for you. You are making my mother well and we shall have a good Christmas."

"Poinsettia is a good name," said the doctor. "We shall call it that."

So Pedro's red flower is now the Christmas flower, not only to one nation but to many. It is raised all over the country from which it came. Scarcely a cottage in Mexico is without its tall red flowers that almost cover the house at Christmas time. Pedro's flower is truly a great gift.

-- Unknown

GEO-ART

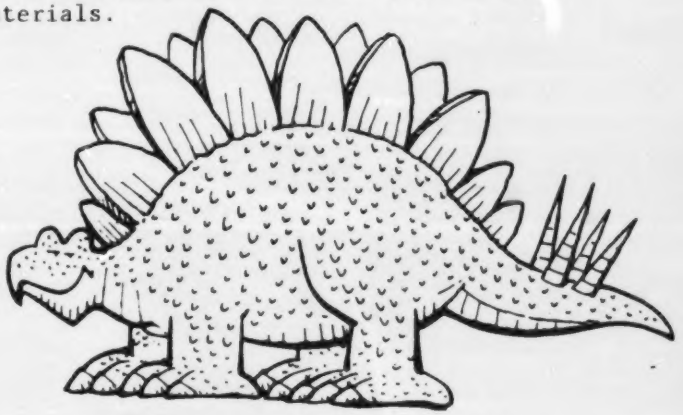
1. Fine white sand can be colored with either tempera powder paints or large colored chalk by putting a small amount in a little dish and rubbing the bottom with the chalk. With liquid starch and paint brushes, the children can make designs and dribble the colored sand onto the starch before it dries. Shake the excess off into the dish and make "Indian sand pictures".

2. Painting on different surfaces is always a good experience. Since children like to paint rocks, the activity is more than fun because learning about textures and discrimination of surfaces may take place.

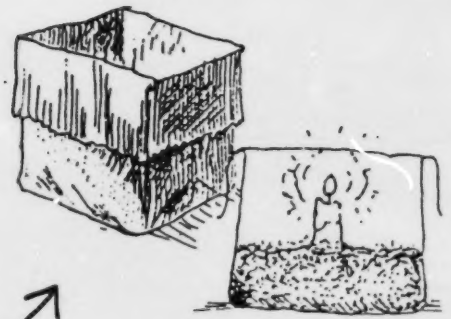
3. The small rocks with painted faces being sold in stores gave us the idea of having the children make their own good luck charm or "feelie" with Wilhold contact cement and small, smooth rocks and pieces of fur (fake and "wild" colored), which can be bought in packages from art supply stores. Designs may also be made on the rocks with a fine pointed felt pen.

4. The children, who are interested, can make dinosaurs out of clay; let them dry and paint them the next day.

5. The teacher could make outlines of different kinds of dinosaurs on large pieces of construction paper which the children can decorate by painting, sponge painting or using collage materials.



SAND-BAG LANTERNS



You can make lanterns to light up a winter night with sand, paper bags and candles. First figure out how many lanterns you want. Get candles that are at least 4 inches (10 centimeters) long and medium-sized plain brown paper grocery bags that are at least 1 foot (30 centimeters) tall. You need one bag and one candle for each lantern. Fold down the top of each bag so that it looks like this:

The candle should still be a few inches shorter than the bag. Put 3 inches (7.5 centimeters) of sand in the bottom of each bag.

Put the bags wherever you want your lanterns. Give permission to use the spot. Choose an open place outside that isn't close to anything that might catch fire. Some good places are around a patio, in the backyard and along the edge of a driveway.

In each bag, push a candle down in the center of the sand and pack the sand around it. Make sure it's standing up straight, won't tip easily and is in the middle of the bag. Use wooden kitchen matches to light the candles. If you're not allowed to use matches, get someone older to light them for you.

These lanterns glow in the dark and won't blow over or blow out. When a candle burns down, it will put itself out in the sand. But you shouldn't leave any lanterns burning unattended.

IDEAS FOR CHRISTMAS

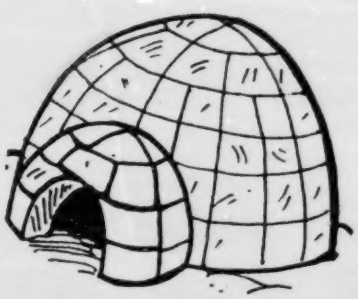
"SNOW" PICTURES

Resist

- Use brown, dark green, dark blue, purple or black construction paper.
- Set up one or two (or more) painting areas with newspaper, thinned white easel paint and a large brush.
- Students draw a winter scene on the construction paper with crayons.
- Talk about trees growing in different sizes - some are bent by the winds, some may have branches broken by snow, ice or wind, etc.
- Talk about fun in the snow - sledding, making a snow man, having a snow ball fight, making footprings, ice skating, skiing.
- Have children put in all parts of their pictures except the sky and the snow on the hillsides or ground area.

Children should crayon heavily so application is waxy to resist the thinned easel paint.

- After each student is finished, the picture is taken to the paint area where a quick wash of white paint is brushed over the whole paper. Wax areas will resist. Tell students the waxy crayon is telling the water to "get off my back". Also liken to scientific principle that water and wax (oil) do not mix.



Allow to dry.

White paint will look like snow and will cover most of the paper area except where wax crayon has been applied very heavily.

TREES - FLAT

1. STRING PULL TREE

Fold paper of suitable color.

Dip string in contrasting paint (white on red or green is good).

Lay string inside folded paper with top end close to fold and bottom end wide, keeping end at bottom. Fold paper over and pull.

After dry, cut tree and shape.

Press with hand while pulling.

2. TORN PAPER TREES

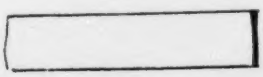
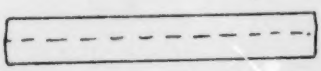
Use paper not larger than 4½" x 6".

Pretend you are a mouse and start "nibbling" out a tree, making it small on top, big on the bottom.

Decorate with torn paper "ornaments". Snow, snowflakes and stars can also be torn.

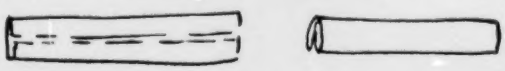
Assemble into a card or mural.

3. TISSUE ROLLS

Cut tissue into strips  about 4" wide. 

Fold to center, fold again if enough width is left.

Roll and paste on tree shaped background. Add ornaments, seeds for decoration.



Do small trees unless this is done as a class project.

Any paper that rolls easily can be used for this tree.

THE THREE TREES

Once upon a time, there were three fir trees growing near the edge of the great forest. As the days begun to grow shorter and colder, and the snow began to fall, the fir trees talked among themselves. Each tree hoped that he would be chosen to be a Christmas tree. It seemed they could think of nothing else.

One day a little bird, who had lost his way and had hurt his wing, fluttered near the tallest of the trees. "Oh, please, fir tree," he said, "May I hide among your green branches to keep warm?"

"No, indeed," answered the fir tree. "I am sure Santa Claus will be along soon and I know that he'll choose me to be a Christmas tree. I don't want a little bird hopping in my branches."

The little bird tried to go on. He fluttered to the smallest fir tree.

The little tree was sighing. "I guess I'm too small to be a Christmas tree this year. I'm going to grow and grow, then maybe Santa will choose me next year."

The little bird gave a hop close to the little fir tree. "Oh, please, let me hide in your branches. I'm so cold and tired; I want to get warm."

"Yes, indeed" said the smallest fir tree. "Just hop up near the middle. My boughs are thick and full there. You will be warm in no time." The little bird felt so happy and he began to feel warmer, too. Then, far away, they heard the sound of sleigh bells. It was Santa and his reindeer.

"Ho, Ho, Ho," called Santa. "Now I must choose a tree just the right size." Santa drove the reindeer near the fir trees.

The tall fir tree called, "Choose me, Santa." But Santa shook his head, "No, not this time." As he drove by the middle-sized tree called, "Choose me, Santa." But Santa shook his head. "No, not this time." Then Santa came to the small fir tree. He stopped the reindeer and jumped out of the sleigh. "Here's the one," he said.

The little bird flew out and sat on the edge of a branch. "Oh, Santa, you're taking my nice new home. What shall I do now?"

Santa looked at the little tree and at the little bird. "Well," he said, "just come along with me. You can be a Christmas present."

So Santa put the tree in the sleigh and the little bird hopped in its branches. Then away they went to a little girl's house where they all had a very merry Christmas!

BUILD A VOLCANO

What you need:

dirt - a place outside
small bottle or can with wide neck
one quart jar or can
white vinegar
baking soda
red dye or food coloring
dishwashing liquid

What you do:

1. Make a mountain of dirt. Bury the small bottle inside it. Make sure the opening of the bottle sticks out the top.
2. Pour 4 tbsp. baking soda into the little bottle.
3. Mix ½ cup water, ¼ cup dishwashing liquid, and ¼ cup vinegar in the quart bottle. Add red coloring to make the mixture look like lava..
4. Pour some of the mix from the quart jar into the small bottle. "Lava" should start erupting!

Why it works:

Baking soda plus vinegar = carbon dioxide gas, which bubbles.
Bubbles mix with the dishwashing liquid to form "lava".
Magma mixed with gas rushes to the surface the same way.

TREE ORNAMENTS - POT POURRI

1. Colored Papers - pasted back to back

Paste the colored food pictures from Christmas magazines back to back, or use old Christmas wraps - the better sections - or the plain areas of better cards if silver, gold, etc. - or some "financial statements" come in elegant paper covers.

After dry, children fashion any kind of paper ornament

tie with old Christmas ribbon

for stiff card paper-use paper punch to punch out design

Chinese puzzle type (for stiff papers)

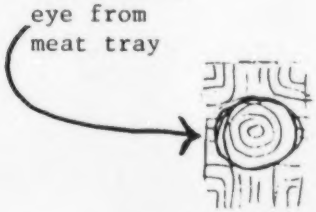
2. Clear Plastic Meat Tray Ornaments

Cut the bulls eye area from the clear plastic meat trays.

Stitch with carpet wrap or wool yarn - using tapestry needles. Any design will do. Use caution when poking hole with needle so the plastic does not tear. Poke a hanging hole & string.

Older students can pre-plan design and poke all holes with the needle before starting stitches.

Cut bull's eye from meat tray



Use blunt tapestry needle

Poke hanging hole and string

3. Tree Rope (kdg.)

Tie knots in cotton roving about 1' apart. These become the places for the students to place the ornaments.

Students go by materials area & pick up wire vegetable tie plus an assortment of other stuffs - small pieces of aluminum foil, roll gum and candy wrappers, celephane candy wrappers - clear or in colors, scraps from clear plastic meat ornaments - bits of nylon netting.

Students sit on floor in circle and wire their bits and pieces to the tree rope at a knot. Nice to have Christmas music on the record player at this time.

knot. knot

4. Plastic (foam) Drinking Cups

- White plastic foam (or even paper) cups can be covered with foil, then yarn strung through bottom - tie knot just under bottom, leaving enough to make "clapper". Wad aluminum foil at end to make "clapper. Knot at bottom prevents pull through. Hand upside down for bell.

- Use bits and pieces of plastic cups for TREE ROPE.

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5. Paper Cups

- Make bells - see above
- if cup is suitable color - red or green - trim "petals" down to bottom and fold out to make "poinsettias". Pierce hanging hole for string.

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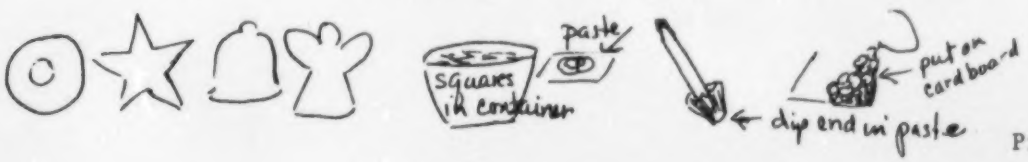
6. Tissue Fluff Ornaments

- Make a light weight cardboard shape.
- Cut tissue into squares. (Place in cottage carton to keep from flowing.) Wrap square over end of pencil. Dip into glue. Place on cardboard shape and lift pencil. Use 1" squares for small children - smaller for older children. Apply squares close together



Do both sides for ornaments.

Pierce for hanging hole.

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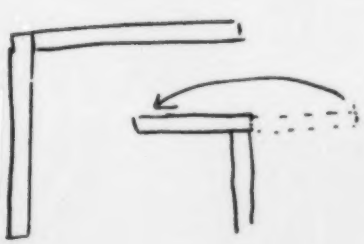
7. Cat Stairs Ornaments

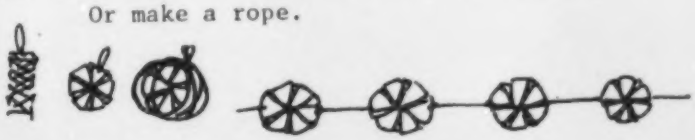
- Cut strips of desired color construction into strips 1/2" or 3/4" or 1" x 18" long. (1" are recommended for kdg. children - 1/2" for older students)
- Place 2 strips at right angles - glue or staple - use 2 different colors for beginners.



Fold strips back over themselves, alternating strips.

- Additional strips may be added at ends
- Use as they are, bring into a circle and use, or insert in cardboard tube for "star".

Or make a rope.

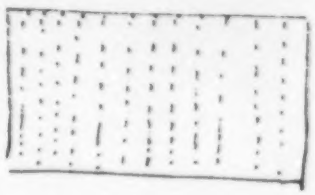


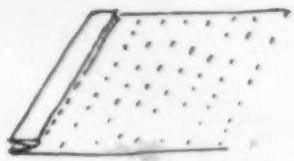
FAN FOLD

1. Mark off thin paper such as typing paper, colored ditto paper, or gift wrap paper. Foil paper is also excellent if available. Smaller children may learn to fold by simply matching the edges as they fold.

   Fold back and forth in a fan.

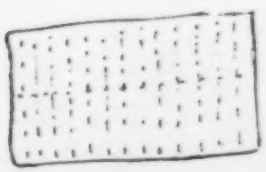
   Construction paper often has a poor grain and does not fold too easily.

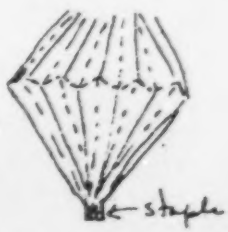




2. One or both edges may be cut at an angle.
   One end or the center can be stapled or tied.
   If holes are cut, the resulting fan is more attractive.

3. Fold fan in half - the opposite direction - after making fan folds. Then refold. Push out at center. Tape or staple each end. These may also be "pierced" for greater decoration.





4. If children can handle needle and thread, fold fan an extra long length, gather around one end to pull into a complete circle. These may also be cut at an angle on one end and "pierced". Tie thread at back. Paste two ends together.

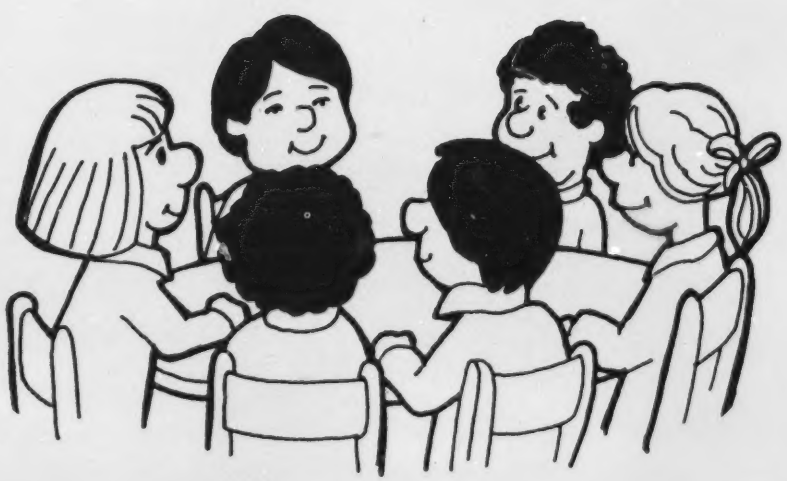
If these decorations are made from Christmas foil wrap, they are very attractive and make beautiful bulletin board ornaments.

SKILLS IMPORTANT BOTH TO SCIENCE AND READING

EXAMPLES OF PROBLEM-SOLVING SKILLS IN SCIENCE	CORRESPONDING READING SKILLS
OBSERVING	Discriminating shapes Discriminating sounds Discriminating syllables and accents
IDENTIFYING	Recognizing letters Recognizing words Recognizing common prefixes Recognizing common suffixes Recognizing common base words Naming objects, events and people
DESCRIBING	Isolating important characteristics Enumerating characteristics Using appropriate terminology Using synonyms
CLASSIFYING	Comparing characteristics Contrasting characteristics Ordering, sequencing Arranging ideas Considering multiple factors
DESIGNING INVESTIGATIONS	Asking questions Looking for potential relationships Following organized procedures Reviewing prior studies Developing outlines
COLLECTING DATA	Taking notes Surveying reference materials Using several parts of a book Recording data in an orderly fashion Developing precision and accuracy
INTERPRETING DATA	Recognizing cause and effect relationships Organizing facts Summarizing new information Varying rate of reading Inductive and deductive thinking
COMMUNICATING RESULTS	Using graphic aids Logically arranging information Sequencing ideas Knowledge of technical vocabulary Illuminating significant factors Describing with clarity
FORMULATING CONCLUSIONS	Generalizing Analyzing critically Evaluating information Recognizing main ideas and concepts Establishing relationships Applying information to other situations

GROUPING ROLES & RULES
FOR SCIENCE ACTIVITIES

READER	READS INSTRUCTIONS AND/OR MATERIALS FOR THE GROUP
RECORDER	RECORDS NOTES & COLLECTS DATA PERTINENT TO THE ACTIVITY OR DISCUSSION
INVESTIGATOR	COLLECTS EQUIPMENT, SETS UP & CONDUCTS ACTIVITY
ASSISTANT INVESTIGATOR	ASSISTS THE INVESTIGATOR WHEN THE ACTIVITY NEEDS MORE THAN TWO HANDS. THIS ROLE MAY BE ELIMINATED IF GROUPS OF 4 OR 5 STUDENTS ARE NOT PRACTICAL
REPORTER	INTERPRETS DIRECTIONS AND DURING CLASS DISCUSSION, PRESENTS THE FINDINGS OF THE GROUP TO THE CLASS

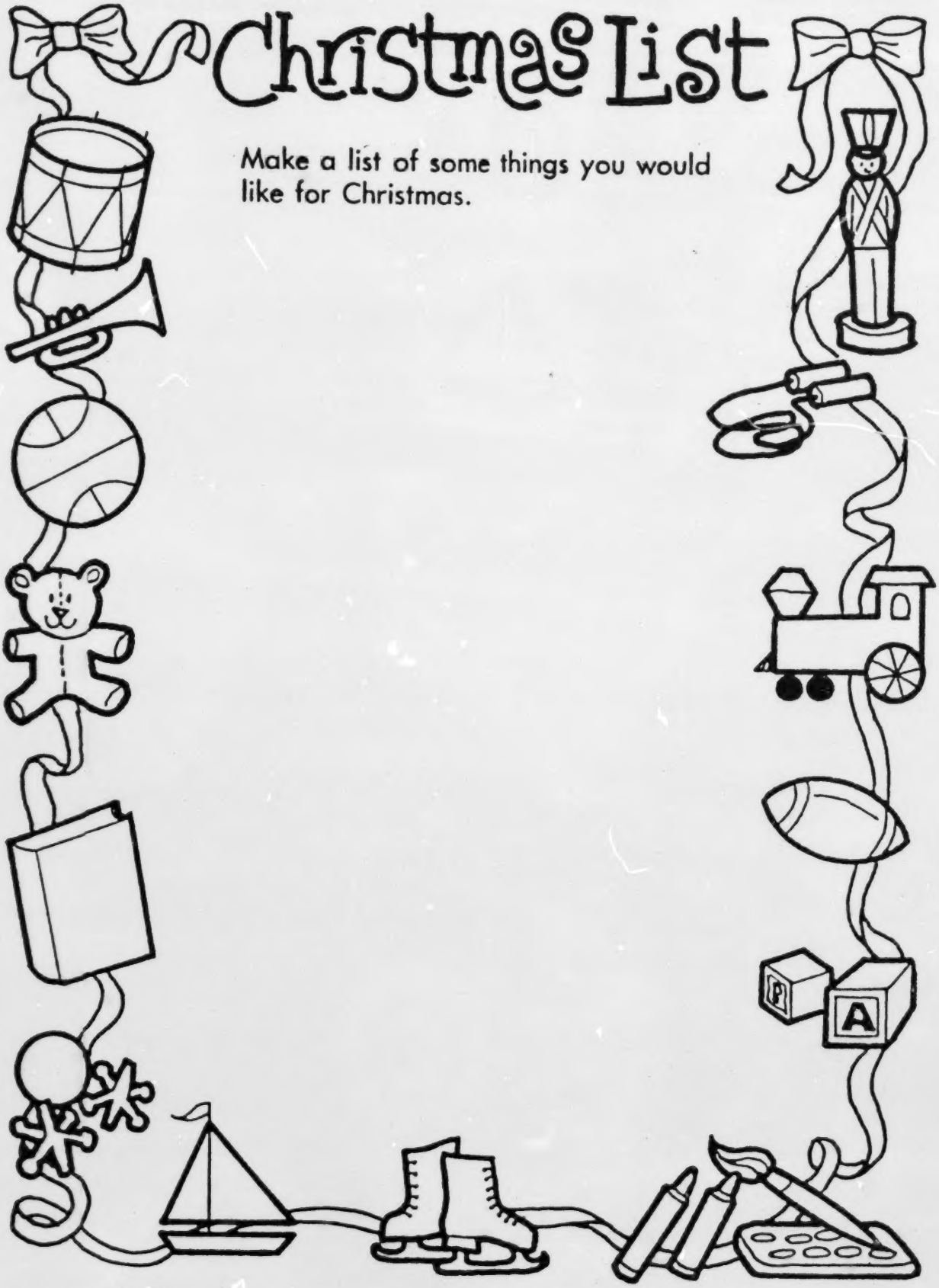


EARTH SCIENCE BOOKS FOR YOUNGSTERS

1. The Crust of the Earth - Keith Clayton
2. The Earth - Arthyr Beiser
3. The Beginning Knowledge Book of Fossils - Ann Epple
4. How and Why Wonder Book of Fossils - John Burton
5. Fossils of Long Ago - Aliki
6. First Book of Stones - M. B. Cormack
7. Stories Read From The Rocks - Betha Parker
8. Secrets in Stones - Rose Wyler & Gerald Ames
9. Rocks and Minerals: A New True Book - Illa Podendorf
10. Millions and Millions of Crystals - Roma Gans
11. What Does A Geologist Do? - R. V. Fodor
12. Curious World of Crystals - Lenore Sander
13. Let's Find Out About Earth - David Knight
14. Earthquakes: Our Restless Planet - Margaret Reuter

Christmas List

Make a list of some things you would like for Christmas.



SPELLING

Try this new twist on a December spelling lesson. Let a committee draw or cut out toy pictures or shapes. Weed out those whose names would be too difficult to spell. Divide the class into teams and hold up each toy, alternating from team to team. When a toy name is spelled correctly, that team gets the picture. The team getting the most toys for Santa to deliver wins.

SPELLING DEMONS

Research indicates that four Christmas words most frequently mispelled are:

icicles
mistletoe
poinsettia
reindeer

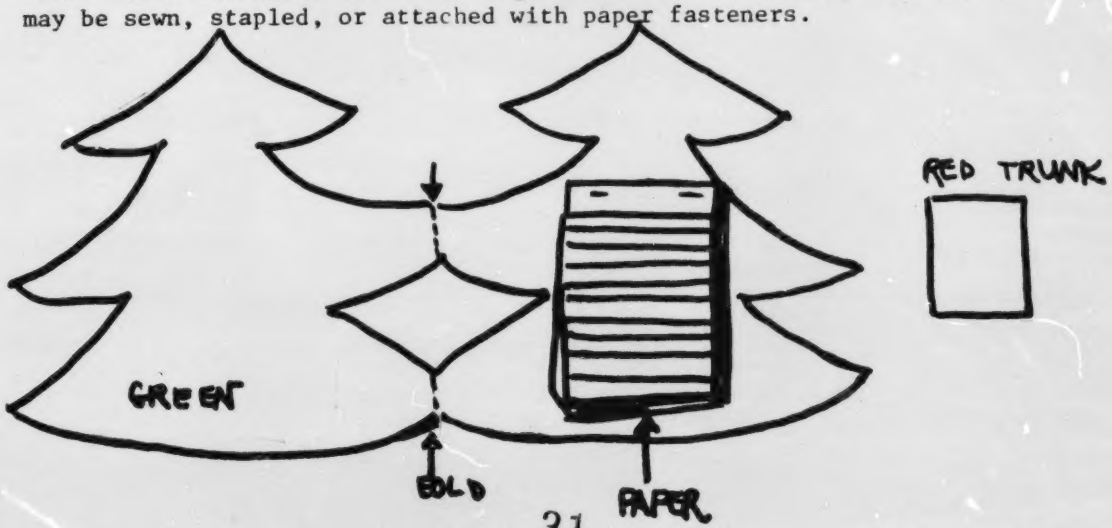
The words "sleigh" and "wreath" tie for fifth place

CHRISTMAS SPELLING BOOK

For this Christmas Tree Spelling Book, cut trees from green construction paper, leaving one joining branch as shown in the illustration.

Make boxes for the trunks of the trees from red paper.

Pads of paper of a size to fit into the main portion of the inside "back tree" should be made from regular school writing paper. These may be sewn, stapled, or attached with paper fasteners.



FIVE LITTLE RAINDROPS

Five little raindrops sat upon a cloud. (Five fingers)

The thunder roared; it was very loud!

And then the raindrops began to fall,

And down they came tumbling, one and all.
(Arms raised, fingers descend slowly.)

One little raindrop fell upon my shoe.

Down came another, and that made (two).

Another little raindrop fell upon my knee.

Count them now, one, two, and (three).

Another little raindrop - how many more?

Count them with me. That makes (four).

Another little raindrop took a little dive.

Count them now, and that makes (five).

Five little raindrops fell from the sky,

But the big sun will lift them by and by.

-L.B.S.

Use this rhyme to teach the water cycle. Cut large raindrops from pale blue construction paper, back them with flannel and use them on the flannelboard as the rhyme is said. Let the children supply the number each time.

GIANT AND ELF

I am a giant who is tall, tall, tall. (Stand on tiptoes with hands reaching)

I am an elf who is small, small, small. (Crouch down)

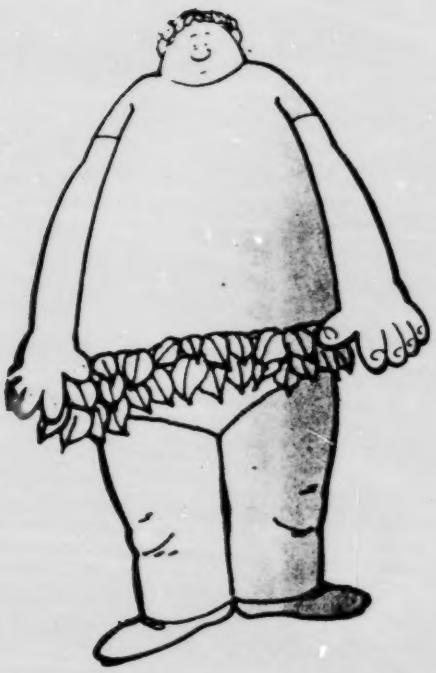
But the little elfman will try, try, try

To reach up to the giant who is high, high, high. (Reach)

So the great big giant will smile and bend

To shake the hand of his little elf friend. (Shake hands with another child)

-Adapted by L.B.S. from an Anonymous Poem



SNOW-FLAKE

Before I melt,
Come, look at me!
This lovely icy filigree!
Of a great forest
In one night
I make a wilderness
of white:
By sky cold
Of crystals made,
All softly, on
Your finger laid,
I pause, that you
My beauty see:
Breathe, and I vanish
Instantly.

WALTER DE LA MARGE

SANTA CLAUS

Unknown

Little fairy snowflakes
     Dancing in the flue;
Old Mr. Santa Claus
     What is keeping you?
Twilight and firelight
     Shadows come and go;
Merry chime of sleigh-bells
     Twinkling through the snow.
Mother's knitting stockings,
     Pussy's got the ball.
Don't you think that Christmas
     Is pleasantest of all?

CLASS PROJECTS WITH SOIL-ROCK AND FOSSILS

SOIL

1. Spread some soil from the school yard on a pie plate or lid. Crumble it with your fingers; let the children handle it too; then look at it with the magnifying glass to see its composition.

2. Have the children bring some soil from their homes and compare it with that in the school yard. Put several different kinds of soil into jars, add some water, watch for a few days and wee which dries fastest.

3. Fill a jar half full of coarse soil, pour in water, shake it and see what happens. Leave it for a day or so; observe that layers have formed, with the coarsest on the bottom and the water is almost clear.

4. Rub two pieces of common sandstone together above a plain piece of paper; feel the result; look at it through a magnifying glass.

5. Put some crumbly rocks on the ground or on top of a large, flat rock; cover with several layers of newspaper or a piece of burlap. Pound the rock with a manner (the children will like to do this) until they are as fine as you can make them. Put this mixture into a flowerpot or can with a hole in the bottom; water it and plant some radish seeds or dried beans. Keep it damp but not soggy. The plants should grow because you have made soil; however, it is not really good soil unless steer manure, bonemeal and other nutritive substances are added.

6. Put some dry, clean pebbles in a can. Shake 100 times and then pour out onto a piece of white paper. As in number 4, some small bits will be broken off. This is the same action as an hour's pounding by waves on the seashore.

7. A worm garden can be made with some pieces of broken flowerpots in the bottom of a jar, then sand, leaves and soil. Place two to twelve worms in the jar; put ½ teaspoon of brown sugar and one teaspoon of coffee grounds on the top; keep moist.

ROCKS

1. <u>To show the minerals in water</u>. Place water in a clean, dry glass and cover it. As the water evaporates, the minerals that were in the water form a cloudy mist on the sides of the glass. These are also part of rock composition.

2. <u>To show the effect of heat on rocks and the expansion and breaking of rocks</u>. Place small rocks or pebbles under a broiler for a few minutes. They will crack and pop.

3. Children are intrigued by the difference in apperance of dry rocks and wet rocks, and like to put them into water to see the difference. Besides looking very different when wet, the round, smooth beach rocks feel good. This activity fits in very well with the book, THE MAGIC FRIEND MAKER by Gladys B. Bond, in which the little girl does this as part of the story and makes a friend, too.

4. Display rocks and encourage the children to bring in any they have gathered. A neighborhood walk or a walk near the school may reveal many kinds of rocks.

FOSSILS

1. Put some damp clay into the bottom of a small cardboard box. Press a shell, a bone or a seed pod into the clay, thus making a deep print. The removal of the object leaves an empty mold, which is one kind of fossil. Molds that are very flat are called imprints.

2. To make a cast, as some fossils are, prepare a clay mold as described. In a milk carton or clean tin can mix a small amount of plaster of paris with enough water to make it as thick as condensed milk. Pour the mixture into the mold and let it set for several hours. When it is hard or solid, lift it out carefully.

Fossils may be described as preserved inside some of the sedimentary rocks and are remains of plant and animal life, or a trace or impression that has been preserved by burial in the earth's crust. Fossils can tell us many things, such as an index to the history of the earth, and by comparing them with living plants and animals, we can learn about the way things have grown, developed and changed.

Petrified wood cannot be imitated because it is not wood, but wood that has been replaced by stone. Tiny cells of the original wood have disintegrated, have been replaced by a rock-forming chemical. Such transformation happens very gradually, cell by cell, so that the structure looks exactly like wood, but is really stone.

Most of the fossils found today are extinct plants and animals. A few, however, have modern descendants, having kept many of the features of their prehistoric ancestors. They are called "living fossils" because they are living things and have come down to the present without changing too much from their ancestors. A few examples of such "living fossils" are:

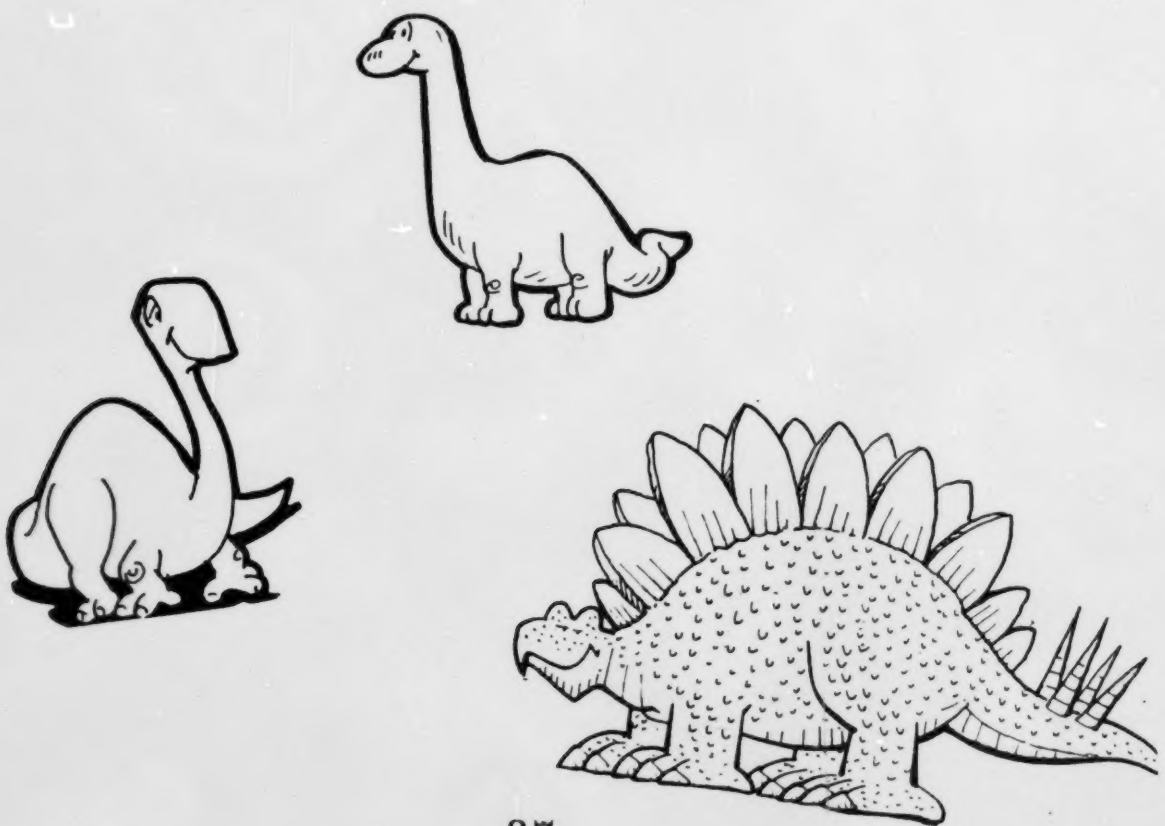
Dragonfly - average wing spread of eight inches; very common in the Coal Age, with a wing spread of 29 inches;
Komodo - a large lizard alive in the Dinosaur Age;
Cockroach - a common insect prevalant in the early Coal Age, much larger than the present species;
Garpike - a long, thin fish, whose ancestors lived in prehistoric seas 300,000 years ago;
Ginkgo tree - a tree with flat, lobed leaves (native to China and Japan), grew in the lush forests during the age of reptiles and now grow in many parts of the world.

ANCIENT ANIMALS

The very first animals were all in the seas. The most numerous of these, four inches long or smaller, was called the trilobite because the hard covering shell was divided into three lobes. The trilobites were ancient relatives of the crayfishes, crabs and lobsters. The first animals with backbones were the fishes.

The next period was the Coal Age during which most of North American was low and swampy, with extensive forests of giant club mosses, horsetails, ferns and a few insects. The first animals to live on land were the scorpions who had been in the sea and then moved to the land followed by spiders and then insects. Then the amphibians, descendents from the fishes, appeared; - starting their lives in water they moved to land in the adult stages, as do our toads and frogs today.

The next to develop were the reptiles who appeared on the land in the last 35 million years of the Paleozonic Era and into the Mesozoic Era. Fourishing for about 150 million years, there were about 5,000 kinds in all, which would appear and then disappear. Among these was the dinosaur, meaning "terrible lizard". They were not all terrible; some were small and many of the large ones were plant eaters. About 60 million years ago the dinosaurs disappeared. Toward the end of the Mesozoic Era, the shallow seas and the swamps gradually dried up. As the climate became colder, new plants replaced those that the dinosaurs had been eating; presumably they were unable to adjust to the changes. As the plant-eating dinosaurs became fewer and fewer, there was less food for the big flesh eaters. Their huge bodies had very small brains; being cold blooded, the change in climate made them sluggish and less able to fend for themselves. There were fewer places in which the water could help the great plant-eating dinosaurs hold up their huge bodies; though they gradually died, some of the dinosaur's reptile relatives lived on.



CHILDREN'S BOOKS

Bates, N. L., WHO BUILT THE DAM, Scribner, 1958.

Darby, G., WHAT IS THE EARTH, Benefic Press, 1961.

Gans, R., THE WONDER OF STONES, Crowell, 1963.

Huntington, H., LET'S GO OUTDOORS, Doubleday, 1939.

Pine, T. S., and Levine, J., ROCKS AND HOW WE USE THEM.

Pondendorf, I., THE TRUE BOOK OF ROCKS AND MINERALS, Children's Press, 1958.

Thompson, E., WHAT SHALL I PUT IN THE HOLE THAT I DIG, Whitman, 1965.

Webber, I., UP AND ABOVE AND DOWN BELOW, Scott, 1943.

TEACHER'S BOOKS

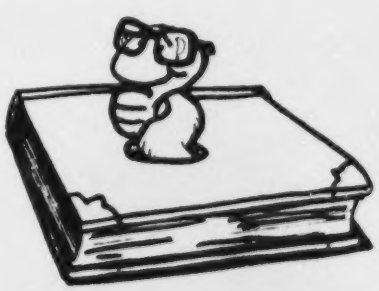
Carson, R., THE SENSE OF WONDER, Harper, 1965.

Fenton and Fenton, ROCKS AND THEIR STORIES, Doubleday, 1951.

Matthews, W., EXPLORING THE WORLD OF FOSSILS, Childrens, 1964.

White, A. T., ROCKS ALL AROUND US, Random, 1959.

Zim, H., WHAT'S INSIDE THE EARTH, Morrow, 1953.



DO YOU KNOW HOW SAND IS MADE?

A sandy beach is made of many tiny rocks.

These tiny rocks that we call sand have been broken down

from big rocks by water and wind.

It takes many, many years for this to happen.

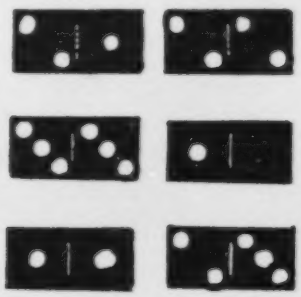
Make a picture of a sandy beach here.

Put yourself in the picture if you wish.

CREATIVE SCIENCE EXPERIENCES FOR THE YOUNG CHILD: Imogene Forte and Joy MacKenzie.

TRAINS

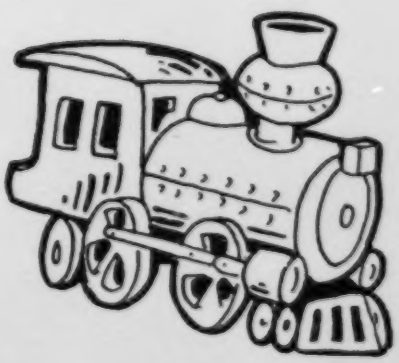
Trains are an easy pattern to initiate problem solving with dominoes. Students must place dominoes in the train configurations so that each of the three trains has the same number of passengers (better known as dots or pips). The example below shows three trains, each containing seven dots.

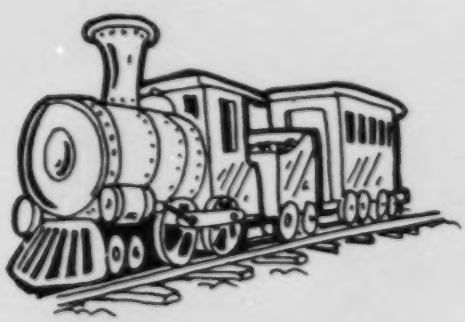


The following three pages are designed to be used as models upon which students place their dominoes. These pages may be glued on heavier tag, laminated and used over and over again.

At first, the student should be encouraged to accomplish any number (as the example above shows). Next, the student should be challenged to find the lowest possible solution and the highest possible solution. A class pursuit might be to locate all possible solution sets.

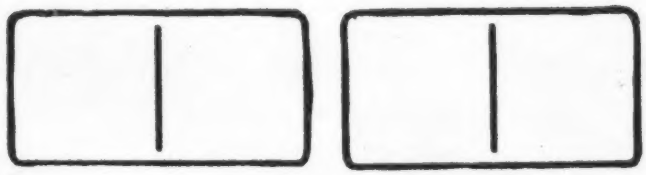
Note: This idea courtesy Marcy Cook Math. Come and see Marcy Cook in person March 9, 1983.

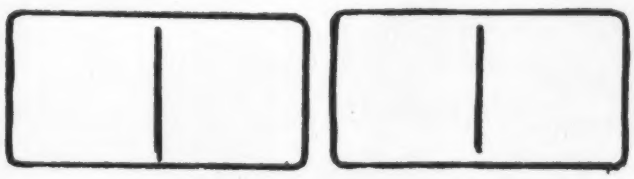


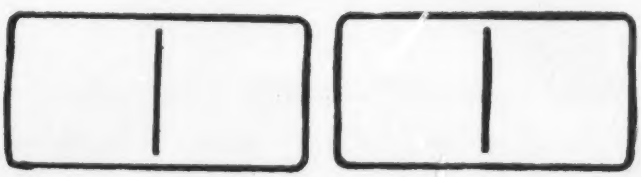


2

Trains







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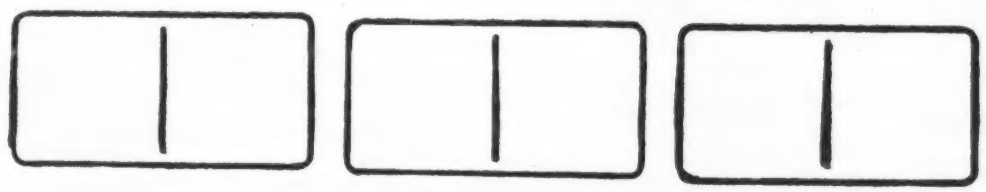
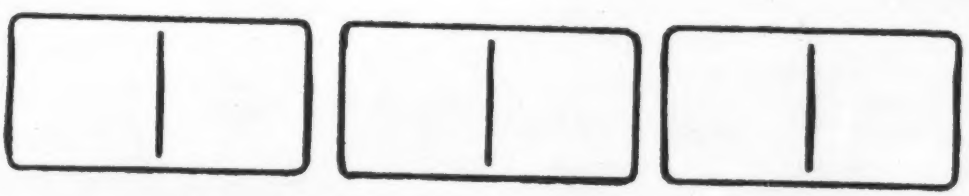
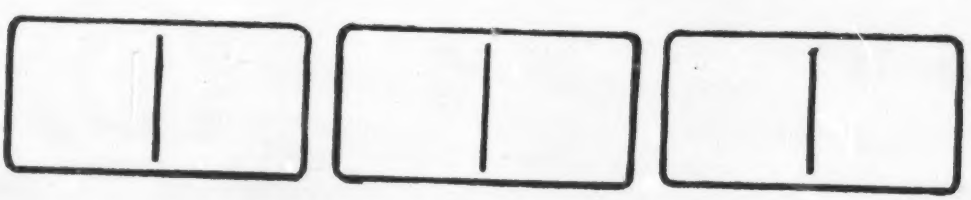
Trains







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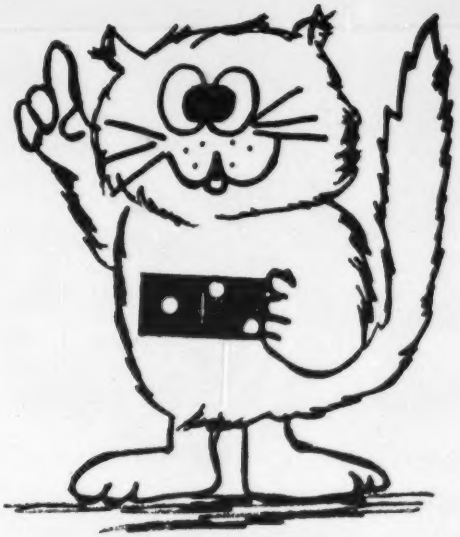
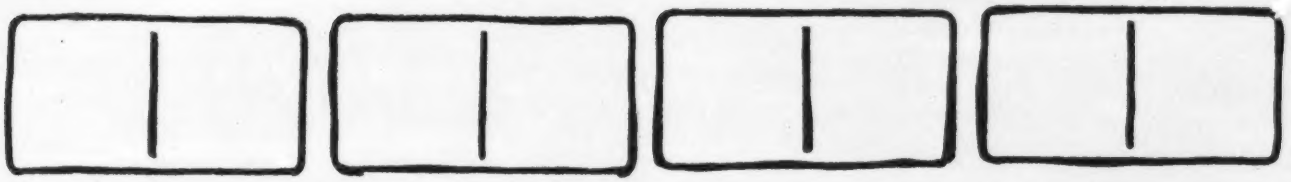
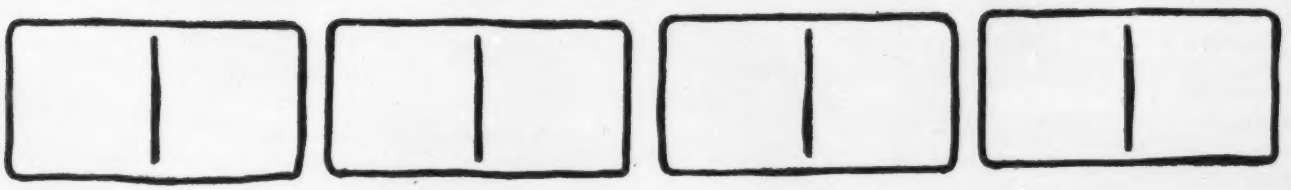
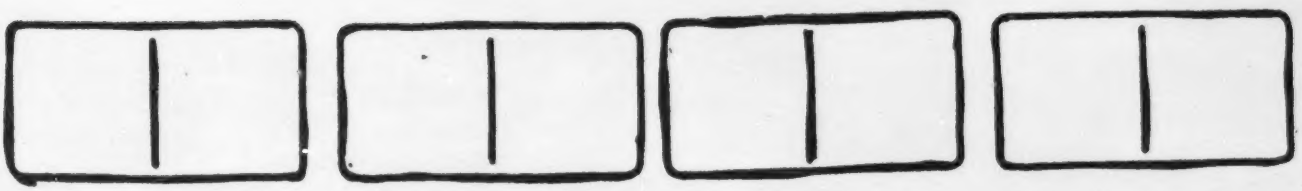
Trains









FIVE LITTLE CHRISTMAS TREES

Make five green flannel Christmas trees of varying sizes. Decorate them on one side. Make five flannel animals of varying sizes (horse, cow, dog, rabbit and kitten). Set up the trees on the flannel board as the following story progresses. When the animal "decorates" a tree, flip the tree to the decorated side and place the animal beside it.

In the forest there were five little fir trees. The first one said, "I'm the biggest, so I'm the best. I'll be a big Christmas Tree."

The second one said, "I'm the next biggest. I'll be a good Christmas Tree."

The third one said, "I'm the middle sized one. I'm not too big, and I'm not too small. I'm going to be a Christmas Tree like the first two."

The fourth one said, "I'm not the smallest. I could be a Christmas Tree, too."

The littlest one sighed and said bravely, "I know I'm the smallest, but you were all small once, too. One day I'll be a Christmas Tree."

Along came some animals. First came the horse. He saw the biggest tree. "Look," he said. "There's the biggest one. Just the right size for me." So he decorated it. It was beautiful. The horse whinnied and tossed his mane.

Next came the cow. "Here's one just the right size for me." The cow decorated the tree. "Isn't it beautiful!" she mooed.

The dog came next. "Say," he barked cheerfully, "here's a middle-sized one, about right for me." He took the third tree and decorated it. "Bowwow!" he barked. "I like it!"

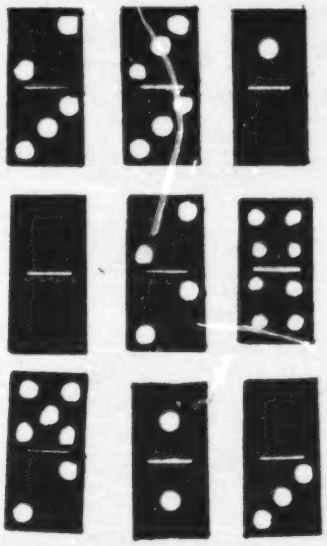
Along came a rabbit. He took the fourth to decorate.

Last of all came a kitten. She saw the smallest tree. "There's one just the right size," she mewed. Decorating it, she said, "It's just pur-fect now!"

45

Magic Squares.....

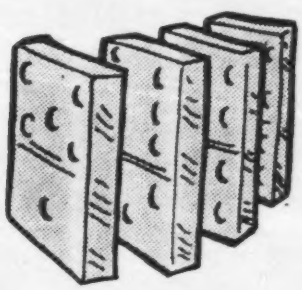
The concept of a Magic Square is that the numbers add to the same sum vertically, horizontally, and on the two main diagonals. Dominoes can be used to achieve this result, as shown by the following example (sum of 12 in rows, columns and main diagonals).



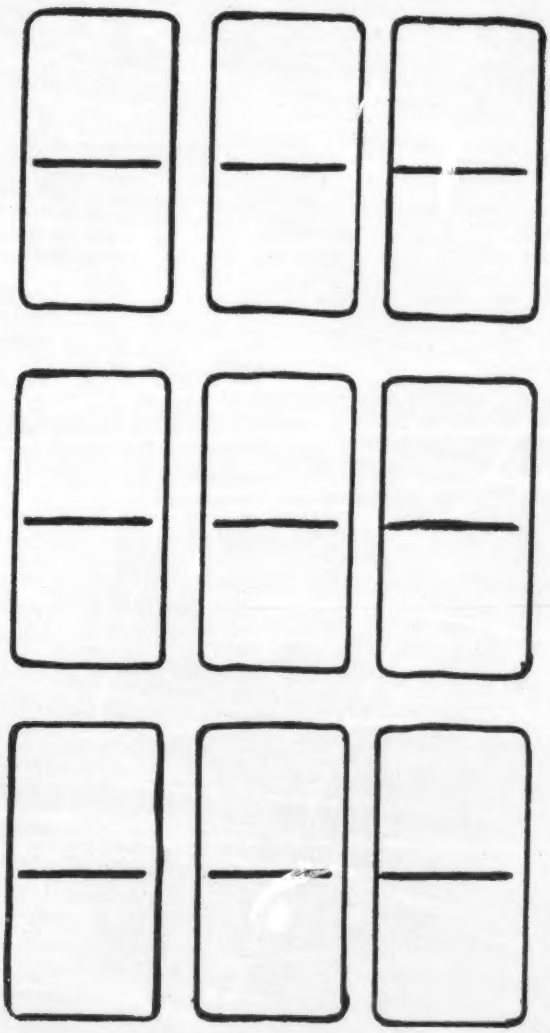
The pattern on the following page may be mounted on heavier tag, laminated, and used for placement of the dominoes.

To make this an easier activity the student may be encouraged to have it work vertically and horizontally only (forgetting about the tough diagonals).

To make this a more challenging task, the teacher may motivate the student to find ALL possible solution sums with a set of Double Six dominoes.



Magic Square



48

Inside A Stone

If you put a small stone in a bag and hit it with something hard, it will break. Now you can see what it is made of. Is the stone all one shade inside? Does every part look the same? Some dark, some light, some shiny, some dull? The different bits of "stuff" are minerals - chemical substances found in nature, usually in crystal form. Some stones are made of many minerals, and some are made of only one.

* *

Rocks and stones come in different sizes and colors.
Rocks are usually very old and are made in many ways.
Rocks tell stories of long ago.
It takes much care to name a rock correctly.
**How many different kinds can you collect?
**How many can you identify?

MY ROCK CHART

ROCK	COLOR		SHADE	WEIGHT	LAYERS	TEXTURE rough smooth	WRITES yes no	SHINY or DULL	CRYSTALS	VINEGAR ADDED	MOHS* RATING	SPECIFIC GRAVITY	OTHER
	dry	wet											
A													
B													
C													
D													
E													

MOHS SCALE CHART

ROCK	Finger Nail	Penny	Nail	Knife	Glass	Tile	Color	Other
A								
B								
C								
D								
E								

*MOHS' SCALE OF RELATIVE HARDNESS

MATERIAL	WHAT IT WILL DO	Rating
TALC	so soft it's used for talcum powder	1
GYPSUM	a fingernail will scratch it	2
CALCITE	a copper penny will scratch it	3
FLOURITE	a steel knife will scratch it	4
APATITE	a knife scratches if you press hard	5
FELDSPAR	will scratch a knife blade	6
QUARTZ	will scratch glass (and all previous)	7
TOPAZ	will scratch quartz (and all previous)	8
CORUNDUM	will scratch all except a diamond	9
DIAMOND	will scratch everything	10

THE PINATA READING GAME

Have the children decorate a large paper bag with Christmas symbols. Score the four sides of the bag with a sharp instrument; put tissue paper in the bottom of the bag to give it some body.

Cut cards from gaily colored construction paper in toy shapes which the children can make - horns, dolls, kites, drums, boats, cars and Christmas trees. On each card print a word from a reading lesson familiar to the children. Put the word cards, when finished, into the piñata and tie it at the top with colored yarn. While the teacher holds the bag or while it is hanging up, a child strikes it lightly with a ruler or pointer. The bag will open in the sections where it is scored. The child puts his hand into the bag, pulls out a word card, looks at it, shows it to the group and reads it out loud. The child can keep the toy-shaped card for his very own.

CHRISTMAS FUN IN MEXICO

Large piñatas
  Hang up high.
The children hit them
  As they pass by.

Funny-faced jars
  Take a great fall
And spill on the floor
  Dulces for all.

PINATA PARTY

At Christmas time in Mexico
In almost every patio
Hangs a piñata, very gay;
Pottery within; without, papier-mache,
Shaped like a star, lamb, donkey,
Elephant, clown, or monkey.
Each child know it is a pack
Of gifts for all, like Santa's sack,
And eagerly awaits the sign
To stand in orderly line,
Be blindfolded in turn,
Then try with a terrific whack
The gift-filled jar to crack.
Whack, whack! It isn't there
But swirling high up in the air!
Someone has pulled the rope,
Yet none will give up hope.
Whack, whack, again, again
Tries each child, large to small.
It must, it shall, be shattered.
Ah, at long last 'tis done!
What laughter and what fun!
What scrambling for a share
By every youngster there!

BALLOON PINATA

Using an air-filled balloon, glue 1 inch strips of colored tissue paper or decorated newspaper onto balloon. Liquid starch or a flour and water mixture can be used. After strips have dried, break balloon with a pin and cut a hole into which candies and small goodies are placed. Hang from a post or tree. At a given time a person who is blindfolded, breaks pinata with a heavy stick so candies will fall out for children to gather.

The Ant and the Cricket

A silly young cricket, accustomed to sing
Through the warm, sunny months of gay summer and spring,
Began to complain when he found that, at home,
His cupboard was empty, and winter was come.
Not a crumb to be found
On the snow-covered ground;
Not a flower could he seen,
Not a leaf on a tree.
"Oh! what will become," says the cricket, "of me?"

At last, by starvation and famine made bold,
All dripping with wet, and all trembling with cold,
Away he set off to a miserly ant,
To see if, to keep him alive, he would grant
Him shelter from rain,
And a mouthful of grain.
He wished only to borrow;
He'd repay it to-morrow;
If not, he must die of starvation and sorrow.

Says the ant to the cricket, "I'm your servant and friend,
But we ants never borrow; we ants never lend
But tell me, dear cricket, did you lay nothing by
When the weather was warm?" Quoth the cricket, "Not I!"
My heart was so light
That I sang day and night,
For all nature looked gay."
"You sang, sir, you say?
Go, then," says the ant, "and dance winter away!"

Thus ending, he hastily lifted the wicket,
And out of the door turned the poor little cricket.
Folks call this a fable. I'll warrant its true:
Some crickets have four legs, and some have but two.

Adapted from Aesop

Coin Capers.....

Directions: Students use a specified number of American coins to make a designated amount (pennies, nickels, dimes, quarters, half-dollars).

Make 25¢ with 8 coins

Make 40¢ with 4 coins
(can you do it more than one way?)

Make 20¢ with 8 coins

Make 18¢ with 14 coins

Make 25¢ with a dozen coins

Make 50¢ with 2 dozen coins

Make 66¢ with 11 coins

Make the value of 2 quarters with 9 coins

Make 70¢ with: 3 coins, 4 coins, 5 coins, 6 coins, 7 coins,

Note: These problems courtesy of Marcy Cook Math. Come and see Marcy in person - March 9, 1984.

color code

11- green
12- blue
13- orange
14- red
15- yellow
16- purple
17- green dots